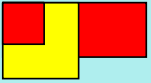


Chapter 5 - Polynomials

Key Words...

- polynomial
- term
- coefficient
- degree
- constant term
- monomial
- binomial
- trinomial
- like terms



Section 5.1 - Modelling Polynomials

We can use algebra tiles to model an expression...


 represents +1

 represents -1



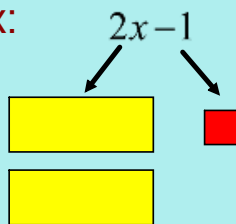
Reminder...

A +1 tile and a -1 tile represent a zero pair

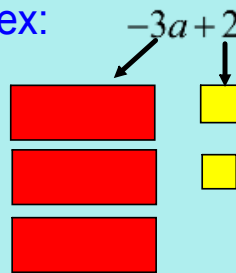
 represents any positive variable (x or n)

 represents any negative variable (-x or -n)

ex:



ex:



Try these...



a) $3x+1$

b) $-2x-2$


c) $-3x+4$


d) $s+4$

e) $5b-3$

Modelling, Writing and Classifying Polynomials

For expressions containing x^2 or n^2 terms...we use...

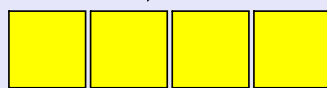
 represents x^2 or n^2

 represents $-x^2$ or $-n^2$

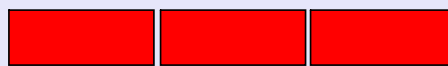
ex: Model $-4t^2$



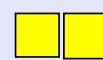
ex: Model $4x^2 - 3x + 2$



4 positive tiles



3 negative tiles



2 positive tiles

$$3x^2 - 2x + 5$$

Polynomial - is one term or sum of terms, whose variables have whole number exponents

It has **3 terms**

$$3x^2 - 2x + 5$$

$3x^2$ is a term
 $-2x$ is a term
 5 is a term

Note: Terms are separated by an addition or subtraction sign

In the term $3x^2$, 3 is the coefficient (number in front of the variable)

In the term $-2x$, -2 is the coefficient

In the term 5 , 5 is a constant (value never changes)

$3x^2 - 2x + 5$ has a **degree** of 2

the term with the greatest exponent determines the degree of the polynomial

$3x^2$ has a degree of 2

$-2x$ has a degree of 1

5 has a degree of 0

Types of Polynomials depend on the number of terms...

Type of Polynomial	Number of Terms	Examples	Types of tiles
Monomial	1	$2s^2$ $-2n$ 4	has only one type of tile
Binomial	2	$x^2 + 3$ $2a - 1$ $-2b^2 + 3b$	has two different types of tiles
Trinomial	3	$-c^2 + 4c - 2$ $x^2 + 2x - 8$	has three different types of tiles

***Monomials, Binomials and Trinomials are all Polynomials

***Polynomials are written (usually) in descending order (highest exponent to lowest)

ie: $2k - 4k^2 + 7$

written as...

$-4k^2 + 2k + 7$



Recognizing the same Polynomials with different variables...

Q: Which of these polynomials can be represented by the same algebra tiles? Or which are equivalent?

a) $3x^2 - 5x + 6$

3 (x^2 tiles)



5 ($-x$ tiles)



6 ($+1$ tiles)



b) $-5 + 6r + 3r^2$

5 (-1 tiles)



6 (r tiles)



3 (r^2 tiles)



c) $-5m + 6 + 3m^2$

5 ($-m$ tiles)



6 ($+1$ tiles)



3 (m^2 tiles)



a and c both use the same kind and # of tiles, therefore they are equivalent

Another method would be to put them in descending order...

a) $3x^2 - 5x + 6$

\downarrow
 $3x^2 - 5x + 6$

b) $-5 + 6r + 3r^2$

\downarrow
 $3r^2 + 6r - 5$

c) $-5m + 6 + 3m^2$

\downarrow
 $3m^2 - 5m + 6$

Same

Textbook: pp. 214 - 216, #'s 4 - 16, 18

